

I-710 SOUTH END UTILITY STUDY PROJECT REPORT

October 19, 2016

CLIENT: Metro
METRO PROJECT MANAGER: Ernesto Chaves

METRO DEPUTY PROJECT MANAGER: Lucy Olmos
AECOM PROJECT MANAGER: Ken Steele

DATE: November 25, 2016

AECOM

Table of Contents

1.	Introduction	4
1.1	Project Background.....	4
1.2	Project Description.....	5
1.3	Project Alternatives	7
1.4	Project Schedule.....	9
1.5	Project Scope and Purpose / I-710 Utility Study	9
2.	Data Collection	9
2.1	Methodology	9
2.2	Existing Information and As Built Plans	10
2.3	Potholes/Surveys/Titles.....	10
3.	Existing Utility Data	10
3.1	Existing Utility Plans.....	10
3.2	Utility Matrix	11
3.3	Prior Research Summary.....	11
3.3.1	Water	12
3.3.1.1	Metropolitan Water District (MWD).....	12
3.3.1.2	Long Beach Water District (LBWD)	13
3.3.2	Telecommunication	13
3.3.2.1	Verizon.....	13
4.	Technical Memorandums	13
5.	Utility Coordination Summary.....	15
5.1	Sewer	15
5.1.1	Los Angeles County Sanitation District (LACSD)	15
5.1.1.1	Coordination Summary Letter	15
5.1.1.2	LACSD Exhibits (Exhibit E2B).....	15
5.1.1.3	LACSD Pumping Plant on Gaylord Street (Exhibit E2A).....	16
5.1.1.4	Revisions to LACSD Pumping Plant at Gaylord Street/16th Street.....	16
5.1.2	City of Long Beach Sewer.....	17
5.1.2.1	Coordination Summary Letter	17
5.1.2.2	LBWD Sewer Alternatives 5C and 7	17
5.2	Water	17
5.2.1	City of Long Beach Water	17
5.2.1.1	Coordination Summary Letter	17
5.2.1.2	LBWD Alternatives 5C and 7	17
5.2.2	Metropolitan Water District (MWD).....	18
5.2.2.1	Coordination Summary Letter	19
5.3	Power and Telecommunication	19
5.3.1	Southern California Edison	19
5.3.1.1	Coordination Summary Letter	19
5.3.2	Verizon.....	27
5.3.3	Charter.....	28
5.3.4	Crown Castle (formerly Next G)	29
5.3.5	T-Mobil.....	29
5.3.6	XO Comm.....	29

6. Petroleum30

6.1.1 Beta Offshore.....30

6.1.2 Chemoil30

6.1.3 Crimson Pipeline (Exhibit E11A)31

6.1.4 Lomita.....33

6.1.5 Oil Operators33

6.1.6 Paramount Petroleum (Exhibit E7).....34

6.1.7 Plains All American Pipeline (Exhibit E8).....34

6.1.8 Shell Oil Company35

6.1.9 CRC – Tidelands (Exhibit E6A-D)35

6.1.10 CRC – Occidental Petroleum36

6.1.11 Chevron (Exhibit E9).....37

6.1.12 Tesoro.....37

6.1.13 Thums.....38

6.1.14 Exxon Mobil38

7. Conclusion39

7.1 Proposed Utility Plans.....39

7.2 Proposed Utility Matrix39

7.3 Cost Estimate Summary40

Appendix A Document copies.....45

Figures

Figure 1: Study Area6

Figure 2: Alternative 5C and 7.....8

Tables

No table of figures entries found.

1. Introduction

1.1 Project Background

The Long Beach Freeway (I-710) is one of the country's most important economic arteries, extending 23 miles in the north/south direction from the Port of Long Beach to the Pomona Freeway (SR-60). At its south terminus, I-710 becomes a State Route connecting with State Route 47 (Seaside Freeway) through the Gerald Desmond Bridge, which is currently under construction. I-710 is one of the oldest freeways in the region dating back to the 1890's. Billions of dollars have been spent on the port's infrastructure since the early 1900's, but little has been done to improve the highway system. In the 1940's, the City of Long Beach took an initiative to plan and construct the Los Angeles River Freeway, known today as the Long Beach Freeway. The purpose of the freeway was to connect the central Los Angeles district with the ports for the transfer of manufactured goods to export facilities at the ports. In the 1950's, the Division of Highways approved the I-710 route as a freeway intended to connect harbor and local industry.

The existing I-710 Corridor runs parallel to the Los Angeles River, the major watershed for Los Angeles County, along its westerly edge. The LA River covers 870 square miles with its outfall being between the Port of Long Beach and the City, at the terminus of the I-710 Environmental Impact Report/Environmental Impact Study (EIR/EIS) project. The west side of I-710 is occupied by the Port of Long Beach and the Port of Los Angeles, the two busiest container ports in the United States. The existing I-710 footprint also runs through the middle of the Wilmington Oil Field, the third largest oil field in the United States in terms of production (16 million barrels per year).

The transfer of goods occurs by either rail or transit. San Pedro Bay Ports has developed an extensive rail system over the years; the Alameda Corridor opened in 2012; and there are ongoing on-dock, near-dock, and off-dock rail improvements within the Port of Long Beach to enhance current rail operations.

It is also important to mention other major projects within the vicinity of the I-710 EIR/EIS project, which had or may have an impact on this project:

- Gerald Desmond Bridge Replacement Project (currently under construction) - connects SR-710 with Terminal Island
- Pier B Yard Expansion (rail project)
- Pier JJ Expansion (rail project)
- Shoemaker Bridge Early Action Project - EIR/EIS will be a part of the I-710 EIR/EIS document
- City of Long Beach projects (park enhancements, bike lane connectivity, Shoemaker Bridge project)
- Traffic forecast updates within the vicinity of the project

A dramatic increase in demand during the recent decade to transfer goods from the ports, geographical constraints, historical heritage of the region, implementation of the Green Port Policy, as well as rapid growth of the cities along the Corridor all contributed to the initiation of the I-710 EIR/EIS project. Numerous studies were performed to support the project. Proximity of ports and the presence of natural oil resources put focus on the existing utilities within the project's footprint. Alternatives and conclusions discussed in the

Draft EIR/EIS document were the catalyst for preparing the I-710 Utility Study for the corridor.

1.2 Project Description

The Los Angeles County Metropolitan Transportation Authority (Metro) is preparing an EIR/EIS document for the improvements to I-710 between the Port of Long Beach and State Route 60 (SR-60), an approximate 19-mile segment. The purpose of the I-710 EIR/EIS project is to achieve the following:

- Improve air quality and public health
- Improve traffic safety
- Provide a modern design for the I-710 mainline
- Address projected traffic volumes for the 2035 horizon year
- Address projected growth in population, employment, and activities related to goods movement.

Metro initiated Utility Study in year 2011, which was divided into three segments: south, central and north. The purpose of this report was to provide information, and technical guidance, and to implement strategies to develop the design in line with the need and purpose for the I-710 EIR/EIS project. AECOM was awarded the south segment component of the study.

The I-710 South End Utility Study begins north of Ocean Boulevard, approximately 1,000 feet south from existing Shoemaker Bridge, in the area where the Gerald Desmond Bridge Improvements merge with existing State Route 710 (SR-710). The study area also incorporates the east side of the LA River with Shoreline Drive from Ocean Boulevard north through Shoemaker Bridge joining with the I-710 Freeway. The northerly limit of the I-710 South End Utility Study Project coincides with the central segment, which is north of the I-710/I-405 freeway interchange.

FIGURE 1 INSERT

Study area

Figure 1: Study Area

1.3 Project Alternatives

The Draft EIR/EIS document includes two Alternatives with one design modification, all approved by Caltrans in October 2015.

Alternative 5C

The revised Alternative 5C is similar to the original Alternative 5C, which was developed in 2011. Alternative 5C proposes widening and modernization to existing I-710 with the Truck Bypass starting at Willow Street. Modernizations will include Diverging Diamond Interchange (DDI) intersections at the Anaheim Street, PCH, and Willow Street bridges crossing over I-710; local interchange improvements; and significant geometric enhancements to the I-710/I-405 freeway interchange. At the south terminus of the project, Shoemaker Bridge will be replaced with a new bridge in line with the existing bridge. Connections to local streets will be re-established to accommodate local community needs.

Alternative 5C Design Option

Alternative 5C Design Option is a modification to Alternative 5C where the footprint of the alternative was revised from the limits of Shoemaker Bridge to PCH to accommodate the City's desire to maintain the connection between PCH and the east side of the LA River through Shoemaker Bridge.

Alternative 7

The Alternative 7 option proposes widening, modernization, and a separate Freight Corridor for trucks, similar to Alternative 6. Modernizations will include DDI intersections at the Anaheim Street, PCH, Willow Street bridges crossing over I-710, as well as a separate Freight Corridor along the LA River that has its south terminus at Pico Avenue. The Shoemaker Bridge footprint and its connection with SR-710 are comparable to the Alternative 5C footprint.

FIGURE 2 INSERT

Figure 2: Alternative 5C and 7

1.4 Project Schedule

The revised Draft EIR/EIS will be released to the public in early 2017. Construction on the project may start as early as 2020 or as late as 2035. A major factor impacting the start date is the project funding. The majority of the mitigation measures described in this report need to be implemented before construction of the I-710 can commence.

1.5 Project Scope and Purpose / I-710 Utility Study

This report is a comprehensive 'toolbox' that can be used as a preliminary design to develop utility relocation plans for the construction of the I-710 EIR/EIS project. The scope of the I-710 South End Utility Study Project is organized as follows:

- Identify existing utilities
- Identify impacted utilities
- Identify major utility conflicts within the project area
- Evaluate major utility conflicts
- Develop existing utility plans
- Determine existing right-of-way information (as franchise, easements, etc.)
- Determine the status of the facility
- Develop Utility Matrix based on major utility information
- Develop strategies for major utility relocations and modifications
- Develop high level cost estimate for the relocation strategies

2. Data Collection

2.1 Methodology

The AECOM Utility Team has identified over 340 miles of utilities within the south segment of the existing I-710 Corridor. The types of utilities include electric, gas, telecommunication, cable, water, sewer and storm drain lines, with the most predominant being petroleum lines. Less than 3.5% of all the utilities were identified as abandoned while less than 20% were identified as unknown and unverified. The majority of the unverified lines are petroleum lines within the Port of Long Beach area (Pier B Street). Over 265 miles of identified utility lines are within the south segment part of the overall utility study area.

The purpose of this report is to supplement the EIR/EIS I-710 Corridor Study Report. Only major utilities are a part of this study. Technical Memorandum #19, Major Utility Relocations Methodology, describes the classification criteria for the major utilities within the project limits (south segment). AECOM identified 286 conflicts within the study area for major utilities.

The definition of major utilities originally established by Metro for the I-710 South End Utility Study has now been expanded. The rationale for the reclassification of some of the utilities from minor to major was based on the following factors:

- Maximum utility size: Metro's definition of major pipelines is lines that are 16-inches in diameter or greater. The majority of the oil pipelines, for example Crimson, within the south segment footprint are 8-inch lines. And since they happen to be the only lines used for petroleum transfer within the south segment, the major pipeline size threshold was lowered to include 8-inch lines.
- Importance of the facility: all telecommunication lines are considered major.
- Complex relocation involving multiple owners: all utilities within the vaults north/south of Willow Street are considered major, which include lines as small as 4 inches in diameter.
- Utilities which may cause impacts to the Area of Potential Effects (APE) footprint, or cause time delays: distribution lines across LA River are considered major utilities.

2.2 Existing Information and As Built Plans

AECOM used a number of different resources to develop existing utility plans. Existing data was compiled from various sources either in electronic form or as hard copy of as-built plans from the City of Long Beach, the Port of Long Beach, Caltrans, Los Angeles County Flood Control District, and various utility companies. As-built drawings of existing utilities were included in the submittal of existing utility plans to Metro in April of 2014.

AECOM also conducted numerous field visits since the project's initiation, primarily to evaluate critical features such as the OXY Site, existing utility bridges, SCE lines along the I-710 Corridor, as well as existing structures. Photos are available upon request.

2.3 Potholes/Surveys/Titles

Pothole work was very limited during this stage of the project. Since the vault at 28th Street was not accessible, pothole information was required to determine the number of utilities running through the vault. AECOM used existing survey data to determine the land ownership, but a field survey was not performed for the project. AECOM also requested Preliminary Title Reports for some of the parcels affected by the project to determine the utility (mostly SCE) rights along the westerly edge of I-710 (Gale Avenue).

3. Existing Utility Data

3.1 Existing Utility Plans

A composite existing utility base map was created from all the existing utility data that was collected. This base map was used as the basis for developing the existing utility plans, which show all the major and minor utilities identified within the project limits. The existing utilities are color coded and identified by type and owner. Land uses and property ownership rights are also identified on the plans. All existing utilities within the project limits are numbered based on the numbering convention described in Technical Memorandum #19, Major Utility Relocations Methodology. The existing utility plans were submitted to Metro in April of 2014.

3.2 Utility Matrix

In addition to the existing utility plans, a Utility Matrix containing information about each utility such as owner, size, material type, status, and right-of way information was also developed. The Utility Matrix also identifies and describes the locations and conflicts of utility crossings. A total of 294 crossings have been identified. The main purpose of the Utility Matrix was to:

- Identify and describe in detail the crossings and conflicts that are shown graphically on the existing utility plans
- Propose relocation strategies for Alternative 5C and 7.

3.3 Prior Research Summary

There are multiple utility facilities within the proposed corridor, some even 100 years old. Caltrans Adoption date for I-710 Route is year 1933, where any cost of utility relocations installed prior to that date will be beard by the project.

Utility owners have been categorized within Utility Matrix, with each impacted utility describing utility rights. Geographically – the area is dominated by oil fields; therefore the majority of utilities include oil, Wet Gas, Dry Gas and Produced Water facilities as well as SCE facilities. Sewers, Water, Storm Drain are also present. I-710 adoption route date is year 1933. This year determines

The Utility Rights research was undertaken in 2011, where majority of information on existing utilities was obtained and specified in the existing utility matrix. The research was re-visited in 2015/2016 to further define the utility rights for impacted utilities, which included information received from the City, direct contact with utility companies, numerous meetings, follow ups etc.

The methodology for the utility rights is also explained in Technical Memorandum #18, and I-710 South Utility Corridor Study Prior Rights Research and Methodology (prepared by Overland Pacific & Cutler, Inc., August, 2013), all included in [Appendix 1](#).

The summary of the Prior Utility Rights is described below:

3.3.1 Long Beach Gas and Oil (LBGO)

LBGO facilities operate under City of Long Beach ownership rights within City Right of Way.

3.3.2 Oil

The agreements within the I-710 south segment vary on the location of the facility:

Location	Agreement Type
Port of Long Beach	License Agreements Permits
City of Long Beach	Franchise Permits

Location	Agreement Type
	License Agreements
Caltrans	Permits
LACFCD	Rental Agreements Permits

3.3.3 Power

SCE facilities operate under Freeway Master Agreement between Caltrans and SCE. The Master Contract determines liability based on the following three scenarios:

- Caltrans/Project shall pay 100% of the cost of Relocations of Owners existing facilities located in a Private Right-of-Way of Owner, upon delivery by Owner to Caltrans a copy of such Private Right-of-Way concurrent with timely submission of Owner's relocation plan to Caltrans.
- Owner shall pay 100% of the cost of Relocation of Owner's Utility Facilities originally installed within State Right-of-Way pursuant to Caltrans Encroachment permit and without benefit of a valid franchise.
- In all other circumstances, including but not limited to Owner's existing Utility Facilities in place pursuant to a valid franchise, statute, or non-perfected claim of prescription, the cost of Relocation of Owner's existing Utility Facilities shall be borne equally by Caltrans and Owner.

SCE facilities operate under Ordinance C-4918 within City of Long Beach.

3.3.4 Sewer and COLB facilities

COLB and LACSD Sewer facilities, per California Streets and Highway Code Section 703, would be relocated at Project expense. Code Section 703 stipulates that publicly owned sewers and fire hydrants and any street lighting structure, whether publicly or privately owned, in any freeway shall be relocated, where necessary, at the expense of Caltrans/Project.

3.3.5 Water

3.3.5.1 Metropolitan Water District (MWD)

The existing MWD pipeline is located north of Wardlow Road (Conflict #3200B), approximately at the extension of Baker Street as it crosses the I-710 Freeway. The pipeline resides in MWD right-of-way via an easement & road franchise/permit between Stations 245+00 and 250+00 [Metropolitan Parcel Numbers 1414-2-1 (Permit) & 1414-3A-1 (Easement) - APN 7203-001-900 (por.)].

3.3.5.2 Long Beach Water District (LBWD)

LBWD facilities are installed under Blanket Permit # P-229-04. Per City of Long Beach Municipal Code, Title 15 - Public Utilities, Chapter 15.44. Whenever the rearrangement or relocation of any facilities installed or maintained in City property is required by reason of a change of the grade, laying of any sewer, storm drain, water, gas or other pipeline or conduit installed for a public service, or making of any other public improvement, the owner thereof shall, within sixty (60) days after written notice from the director of public works (or such other time limit as may be specifically provided in any applicable franchise ordinance), rearrange or relocate the same to accommodate the public improvement at its own cost and expense, and to the satisfaction of the Director of the Public Works.

3.3.6 Telecommunication

3.3.6.1 Charter

There are underground and overhead facilities within the project footprint. Overhead facilities are attached to SCE poles, where underground facilities operate under City franchise agreements.

3.3.6.2 AT&T

AT&T facilities operate under Freeway Master Agreement between Caltrans and AT&T. The Master Contract determines liability based on the following three scenarios:

- Caltrans/Project shall pay 100% of the cost of Relocations of Owners existing facilities located in a Private Right-of-Way of Owner, upon delivery by Owner to Caltrans a copy of such Private Right-of-Way concurrent with timely submission of Owner's relocation plan to Caltrans.
- Owner shall pay 100% of the cost of Relocation of Owner's Utility Facilities originally installed within State Right-of-Way pursuant to Caltrans Encroachment permit and without benefit of a valid franchise.
- In all other circumstances, including but not limited to Owner's existing Utility Facilities in place pursuant to a valid franchise, statute, or non-perfected claim of prescription, the cost of Relocation of Owner's existing Utility Facilities shall be borne equally by Caltrans and Owner.

3.3.6.3 Verizon

Verizon has a Caltrans Master Agreement contract that governs the apportioning of obligations and cost associated with relocation work involving freeway projects. Under section 5 of the Master Agreement it states that, the cost of all work to complete the Relocation of Owner's existing Utility Facilities necessitated by Department's Freeway project shall be borne equally by Department and Owner.

4. Technical Memorandums

After the initial start of the project, numerous technical studies were performed, all related to the Draft EIR/EIS document released in 2011. The studies were triggered by different factors related to utilities and Freight Corridor Constructability. Technical

memorandums became supporting documentation for the I-710 EIR/EIS document and are referenced throughout this report.

There are a total of 23 technical memorandums for the I-710 EIR/EIS project. Technical memorandums provide additional in-depth information about project history, strategies, or developed methodologies for facilities within the project limits. Technical Memorandum #23, Technical Memorandums Methodology, describes in short the content of all the technical memorandums. The technical memorandums related to the I-710 South End Utility Study are a part of Appendix 1, and listed below:

Table 1: Technical Memorandums

1	I-710 Mainline Shift (North of PCH)
2	LACSD Sewer along Oxy
3	Geometric Modifications due to GDB Revisions
4	Tidelands Feasibility Analysis
5	LACSD Pump Station at 16th Street
6	-
7	Geometric Modifications due to Oxy
8	-
9	Pipeline Crossings South of Willow
10	Pipeline Crossings North of Willow
11	Pipeline Crossings North of Wardlow Rd
12	-
13	-
14	-
15	-
16	-
17	-
18	Utility Rights Methodology
19	Major Utility Relocations Methodology
20	SD Pump Station at Willow St
21	SD Pump Station at Anaheim Street
22	SD Pump Station at PCH

5. Utility Coordination Summary

5.1 Sewer

5.1.1 Los Angeles County Sanitation District (LACSD)

5.1.1.1 Coordination Summary Letter

Concurrence letter was received on 01/16/2016. The letter lists all conflicts within the project limits. See Appendix 2

5.1.1.2 LACSD Exhibits (Exhibit E2B)

Based on the Utility Matrix, AECOM developed 400-scale exhibits identifying all existing and impacted facilities, along with their proposed mitigation measures. The exhibits were sent to LACSD along with the coordination summary letter. Prior to preparing the summary letter, all impacts and mitigation measures were coordinated with LACSD at meetings or via email.



LACSD Pump Station – Surge Tank and Manifold Structure

5.1.1.3 LACSD Pumping Plant on Gaylord Street (Exhibit E2A)

AECOM also developed separate exhibits for the LACSD pump station for each of the three Alternatives. The exhibits depict the existing condition, the impacts of each Alternative on the pump station, and proposed mitigation measures. All mitigation measures were coordinated with LACSD.

Alternative 5C causes the least impact to the LACSD pump station out of the three Alternatives. The existing 36-inch overflow pipe to the LA River will be impacted by proposed ramps, and an existing manhole serving the overflow will require relocation.

The westerly edge of Alternative 5C Design Option extends further to the west and requires the existing surge tank, manifold structure, and in-flow junction structures to be relocated and reconnected to new and existing facilities. Based on LACSD construction plans, the wet well is proposed to be 8 feet away from the southbound I-710 Anaheim Street Off-Ramp. LACSD established zone of influence is 15 feet away from the building; therefore Alternative 5's ramp is encroaching 7 feet into the zone of influence.

The westerly edge of Alternative 7 has a similar impact to Alternative 5C Design Option where the existing surge tank, manifold structure and in-flow junction structures will require relocation and reconnection to new and existing facilities. The proposed mitigations strategy is to re-route the in-flow pipes (Exhibit 2A). The existing in-flow connections may be kept in service, depending on TCE and column footings – all to be developed and coordinated for the next phase of the design.

5.1.1.4 Revisions to LACSD Pumping Plant at Gaylord Street/16th Street.

Further coordination with LACSD related to the pumping plant at Gaylord Street revealed the need for LACSD to keep the existing pump station operational as a standby facility. The new pump station is currently under construction while the existing pump station remains in operation. Once construction is completed, flow from the existing pump station will be diverted to the new pump station, and the existing pump station will become a backup facility. Alternative 5C Design Option and Alternative 7 will require demolition of the existing pump station, the manifold structure, and surge tank. Each of these features needs to be replaced at an adjacent location. Since the existing pump station will serve as a backup, it will also require relocation. The new pump station includes 6 pumps, an operations building, a transformer, and site improvements (streets and parking). AECOM requested an itemized construction bid from LACSD for the new pump station, but only a total cost of \$36-40 million for the entire facility (including furnishing of all pumping equipment) was provided. AECOM's preliminary estimate for the new standby pump station is \$30 million. This cost is a percentage of the actual cost of the pump station currently under construction.

The existing LACSD pump station was originally constructed in 1947, with upgrades to the dry well, manifold, and valves occurring in 1963/1965. The existing dry well, which includes six pumps, as well as appurtenances surrounding the structure are over 50 years old. It is advised that the actual relocation of the existing dry well and the cost will be further evaluated during the next design phase of preferred Alternative, taking into consideration the life expectancy for the structure, and the need for relocation to serve as a backup facility.

Disruptions/Lead time

Alternative 5C Design Option and 7 cause major impacts to the facility. Staging and construction for the LACSD mitigation measures has to be coordinated with LACSD, well ahead of the projected start time for the construction of the I-710 improvements. Design and construction of all appurtenances in conflict, and possible relocation of the existing pump station may take up to 2 years.

5.1.2 City of Long Beach Sewer

5.1.2.1 Coordination Summary Letter

Concurrence letter was signed on 01/29/2016. The letter lists all conflicts within the project limits. See Appendix 2.

5.1.2.2 LBWD Sewer Alternatives 5C and 7

Based on the Utility Matrix, AECOM developed 400-scale exhibits identifying all existing and impacted facilities, along with their proposed mitigation measures. The exhibits were sent to LBWD with the coordination summary letter that was signed in January, 2016.

Alternative 5C

Manhole (at-grade) adjustments will be required on the east side of the LA River in the vicinity of Broadway Street, W 3rd Street, and W 6th Street. Since the proposed streets are planned to be at-grade, adjustments are considered to be minor.

The west side of I-710 between Anaheim Street and PCH has sewer services which terminate at the I-710. All of these services will have to be either abandoned or removed.

Alternative 7

Alternative 7 has similar conflicts to Alternative 5, with an additional conflict at the Anaheim Freight Corridor tie-in where an existing manhole is in conflict with the proposed improvements and requires relocation.

5.2 Water

5.2.1 City of Long Beach Water

5.2.1.1 Coordination Summary Letter

Concurrence letter was received on 01/29/2016. The letter lists all conflicts within the project limits. See Appendix 2.

5.2.1.2 LBWD Alternatives 5C and 7

Based on the Utility Matrix, AECOM developed 400-scale exhibits identifying all existing and impacted facilities, along with their proposed mitigation measures. The exhibits were sent to LBWD with the coordination summary letter that was signed in January, 2016.

Alternative 5C

The majority of water conflicts appear to be at the Anaheim Street, PCH, Willow Street, and Wardlow Road bridge crossings. Water service is routed through the bridges to

connect the east and west side of the LA River via 8-inch lines. All conflicting water lines are to be removed and replaced during the bridge construction. Depending on the alternative that is selected and the construction staging, additional temporary water connections may be required.

The area between Anaheim Street and PCH will require some of the water services to be terminated. Lines will be removed or abandoned due to the freeway widening or Tidelands relocation.

Alternative 7

Similar to Alternative 5C, all water conflicts appear to be on bridges, with some additional crossing conflicts at Pico Avenue and the Anaheim Freight Corridor tie-in where 24 to 36-inch lines exist and will require relocation.

The area between Anaheim Street and PCH will require some of the water services to be terminated, similar to Alternative 5C. Lines will be removed or abandoned due to the freeway widening or Tidelands relocation.

Alternative 5C Design Option

Alternative 5C Design Option impacts are similar to the impacts for Alternative 5, with variations between Anaheim Street and PCH where the footprint is as wide as Alternative 7. The impacts of the wide footprint are comparable with Alternative 7 between Anaheim Street and PCH, including impacts to bridge crossings.

5.2.2 Metropolitan Water District (MWD)

There is only one MWD conflict (Conflict #**3200B**) with the proposed improvements, which occurs north of Wardlow Road and south of the I-710/I-405 interchange. An existing 30-inch MWD line crosses under the LA River, continuing in the east/west direction where the discharge structure and air vac assembly are located, both within existing or future Caltrans right-of-way. Alternatives 5C and 7 have slightly different mitigation measures, although for both alternatives, the appurtenances for MWD's facility are being relocated outside of Caltrans right-of-way.



MWD appurtenances (discharge valve structure)

5.2.2.1 Coordination Summary Letter

Concurrence letter was received on 10/08/2015. The letter lists all conflicts within the project limits. See Appendix 2.

Alternative 5C

Alternative 5C's geometry separates from LACFCD right-of-way within the vicinity of the MWD line. The existing MWD outlet structure will be within proposed Caltrans right-of-way, and will be in conflict with the air-vac assembly. Mitigation measure proposes to relocate the valve north of existing MWD line with the new outlet provided to the LA River. Existing air vac assembly being in conflict will be relocated west to Gale Avenue.

Alternative 7

Alternative 7 has similar impacts, but proposed geometry does not provide enough room to relocate the discharge valve into LACFCD right-of-way. Therefore, the discharge valve will be relocated to the east side of the LA River, with an outlet to the river and power provided from Baker Street. The existing air vac assembly is being relocated west to Gale Avenue, similar to Alternative 5C.

Existing removal work will require coordination with Caltrans. Alternative 7 will create some noise and space impacts on the east side of the LA River.

Disruptions/Lead Time

All work to be completed before I-710 Construction takes place.

5.3 Power and Telecommunication

SCE has both transmission and distribution lines within the project study area. Originally, only transmission lines were to be included in the study, but distribution lines are now part of the study as well. Reasons for analyzing the distribution lines include the fact that some distribution lines are attached to transmission power poles, while some others cross I-710 and the LA River in locations where space to place poles becomes either limited or non-existent.

5.3.1 Southern California Edison

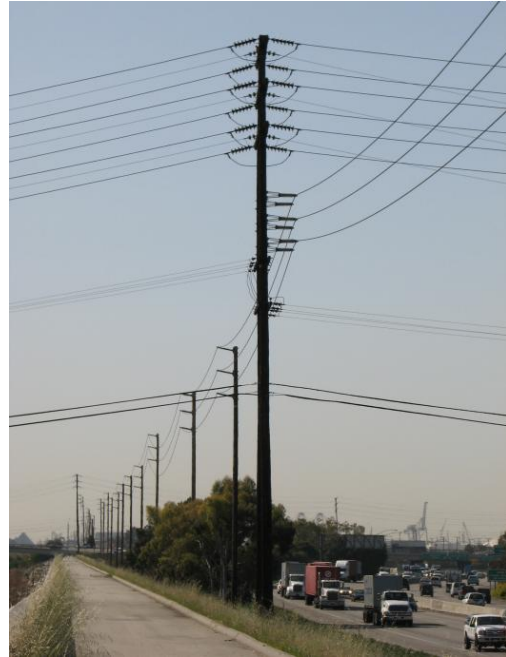
5.3.1.1 Coordination Summary Letter

Concurrence letter was received on 10/08/2015. See Appendix 2.

Alternative 5C

Conflict **2005** is a 66kv aerial system along the west side of the LA River running from the Pico Substation south of Ocean to Willow Street. The system is in conflict in several locations: crossing the realigned Shoemaker Bridge; from the south side of Anaheim Street through the Tideland's property to Gaylord Street; and from 20th Street to Willow Street.

The relocation strategy proposes that the facility follows the same general alignment as the existing system, but going underground in a casing to cross underneath Shoemaker Bridge, then rising back up aerially on new poles between the widened I-710 and the LA River access road. The system will then aerially cross I-710 at 25th Street, and then head west of the proposed south bound ramp to transition back to Willow Street. This relocation will require engineered steel poles.



SCE Hinson/Pico 66kV line
running parallel to I-710 (Conflict 2005)

Conflict **2008A** is a 12kv overhead system north of Pier C Street crossing the LA River south of the existing Shoemaker Bridge. The existing system will be in conflict with the realigned Shoemaker Bridge. The relocation strategy proposes to intercept Conflict 2008 between the I-710 and the LA River, and route the system underground and south to the existing utility bridge. Conflict 2008 will use the utility bridge to cross the LA River. On the south side of the river, Conflict 2008 will remain underground and cross under Shoreline Drive via directional bore. Once across northbound Shoreline Drive, Conflict 2008 will turn north and intercept the existing overhead lines just north of 6th Street. The directional bore will add additional month to the typical relocation time.

Conflict **2010** is a 12kv aerial system spanning the 710 between 10th and 11th Street. This system will be removed and back fed from the south.

Conflict **2011A** is a 12kv aerial system paralleling Fashion and spanning over Anaheim Street. The widening at Anaheim Street will require an in line aerial relocation to span the widened Anaheim roadway.

Conflict **2012** is a 4kv and 12kv underground system in Anaheim Street crossing the I-710 and the LA River. The system will be in conflict with new Anaheim Street bridge construction, and will be relocated to an aerial crossing of the I-710 and the LA River at Cowles Street. On the east side of the LA River, the system will be relocated to San Francisco Avenue and run south to Anaheim Street. The relocation will require new poles from Fashion Avenue to San Francisco Avenue with a new pole between the I-710 and the LA River access road. This system will be on joint poles with Conflict 2014 and Conflict 2015. Conflict 2012 could be moved on an interim basis to this location and then moved permanently back into Anaheim Street within the new bridge.

Conflict **2014** is a 66kv aerial system crossing the I-710 and LA River at Cowles Street. The I-710 widening and the northbound on-ramp from Anaheim Street will be in

conflict with this system. The relocation will require new poles from Fashion Avenue to San Francisco Avenue with a new pole between the I-710 and the LA River access road. This relocation requires engineered steel poles.

Conflict **2015** is a 66kv aerial system crossing the I-710 and LA River at Cowles Street. The I-710 widening and the northbound on-ramp from Anaheim Street will be in conflict with this system. This relocation will occur on joint poles with Conflict 2014.

Conflict **2017** is a 12kv aerial system crossing the I-710 and the LA River at 15th Street. The I-710 widening and ramp work will be in conflict with this system. The relocation strategy proposes to route the system north along Fashion Avenue to Gaylord Street where it will turn east and span the I-710 with a new pole east of the I-710, and then span the LA River to connect with an existing north/south system on the east side of the river.

Conflict **2021B** is a 66kv aerial system running parallel to and just north of PCH across both the I-710 and LA River. The system will be in conflict with the PCH bridge widening. In order to avoid multiple relocations of this system, it is recommended that the south half of the PCH bridge be constructed first. This would allow for an underground relocation in the south half of the bridge. The relocation would occur between Harbor Avenue on the west side of the LA River and Golden Avenue on the east side. Additional design time is required for trenching/cell placement within the bridge.

Conflict **2022A** is a 12kv system on joint poles with Conflict 2021B running parallel to and just north of PCH across both the I-710 and LA River. The system will be in conflict with the PCH bridge widening. In order to avoid multiple relocations of this system, it is recommended that the south half of the PCH bridge be constructed first. This would allow for an underground relocation in the south half of the bridge. The relocation would occur between Harbor Avenue on the west side of the LA River and Golden Avenue on the east side. This conflict will require a new bridge cell independent of the cell for Conflict 2021B.

Conflict **2022B** is a 12kv underground system (part of Conflict 2022A) that will be relocated east of Harbor Avenue with Conflict 2022A.

Conflict **2024** is an aerial service drop feeding the pump station. This small system would be relocated as a part of the pump station reconfiguration.

Conflict **2025** is a 12kv underground system feeding the pump station east of 19th street. The pump station will be removed or relocated, causing the removal of Conflict 2025.

Conflict **2031** is 12kv underground system feeding the pump station east of 27th Street. The pump station will be removed or relocated, resulting in the removal of Conflict 2031.

Conflict **2033** is a 66kv aerial system crossing I-710 and the LA River at Spring Street. The existing pole at the east end of Spring Street is in conflict with the proposed truck route. The relocation will require a new pole on Spring Street east of Gale Avenue, and new conductors between the existing pole west of Gale Avenue and the existing pole east of I-710.

Conflict **2034** is a 12kv aerial system on joint poles with Conflict 2033 crossing I-710 and the LA River at Spring Street. The existing pole at the east end of Spring Street is in conflict with the proposed truck route. The relocation strategy will utilize the new Conflict

2033 pole on Spring Street, and will require new conductors from the new pole to the existing pole east of I-710.

Conflict **2035** is a 66kv aerial system on joint poles with Conflict 2033 crossing I-710 and the LA River at Spring Street. The existing pole at the east end of Spring Street is in conflict with the proposed truck route. The relocation strategy will utilize the new Conflict 2033 pole on Spring Street, and will require new conductors from the new pole to the existing pole east of I-710.

Conflict **2036** is a 4kv aerial system crossing the I-710 to feed a gage station facility at the LA River. The system is in conflict with the freeway widening and truck route. The relocation will require a new pole at the end of 33rd Street as well as a new pole on the east side of I-710 within the LACFCD right of way.

Conflict **2037** is a 12kv aerial system crossing I-710 and the LA River at 34th Street. Existing space where the utility pole exists will be occupied by Freight Corridor. The aerial relocation would require placing two new poles on 34th street and a new pole between I-710 and the LA River.

Conflict **2040** is a 12kv system parallel to conflict 2042, running on the north side of Wardlow Road just west of I-710. The system will need to be relocated away from the I-710 widening, requiring one new pole. The system is also on joint poles with Conflict 2042 and will get relocated from just west of Delta Street to east of Caspian Avenue. Relocation time is dependent of relocation of Conflict 2042.

Conflict **2042** is dual-circuit 66kv aerial system on the north side of Wardlow and is fed from the SCE transmission corridor between Delta and Caspian. The existing poles are in conflict with the street realignment. The relocation will require four new poles, but should not require engineered steel poles.

Alternative 7

Conflict **2000** is an aerial 66kv system along the north side of Pico Avenue. The system is in conflict in two places, the ramp to Gerald Desmond Bridge and the ramps to and from Pier B Street. At the Gerald Desmond Bridge crossing, two new poles will need to be installed, one on either side of the ramp. The conflict near Pier B Street will require at least 3 new poles, with possibly 4 or 5 being required. The poles would be placed in line with the existing system. Engineered steel poles will be required for this location.

Conflict **2003** is an aerial 66kv system on joint poles with Conflict 2000 along the north side of Pico Avenue. The system is in conflict in two places, the ramp to Gerald Desmond Bridge and the ramps to and from Pier B Street. At the Gerald Desmond Bridge crossing, two new poles will need to be installed, one on either side of the ramp. The conflict near Pier B Street will require at least 3 new poles, with possibly 4 or 5 being required. The poles would be placed in line with the existing system.

Conflict **2005** is a 66kv aerial system along the west side of the LA River running from the Pico Substation south of Ocean Boulevard to Willow Street. The system is in conflict in numerous locations, including the northbound on ramp from Pier B Street, the truck route at Shoemaker Bridge, and the truck route from the Oxy Oil facility to Willow Street. The relocation strategy, as indicted by SCE, would be to relocate the existing system along the west edge of the LA River to predominantly on the east side of the river. The relocation would be underground from Harbor Avenue at PCH, across the PCH

Bridge, east to Magnolia. At Magnolia, the system would go overhead and south to Cypress Way and then Crystal south to 5th street, underground west on 5th to a new pole east on Shoreline, span Shoreline and reconnect into the Seabright Substation from the north. The relocation would then go on existing poles from the Seabright Substation across the LA River to the Pico Substation on the west side of the river. The duration of design and construction will be about 6 months longer than typical and will require engineered steel poles.

Conflict **2008A** is a 12kv aerial system spanning the LA River at 7th Street. The existing system will be in conflict with the Shoemaker Bridge. The relocation will intercept Conflict **2008** between I-710 and the LA River, and route it south underground to the existing utility bridge. Conflict 2008 will then use the utility bridge to cross the LA River. On the south side of the LA River, Conflict 2008 will remain underground and cross under southbound and northbound Shoreline Drive via directional bore. Once across northbound Shoreline Drive, Conflict 2008 will turn north and intercept the existing overhead lines just north of 6th Street. The directional bore will take approximately 2 months longer than normal.

Conflict **2010** is a 12kv aerial system spanning I-710 between 10th Street and 11th Street. This system will be removed and back fed from the south.

Conflict **2011A** is a 12kv aerial system paralleling Fashion Avenue and spanning over Anaheim Street. The widening at Anaheim Street will require an in-line aerial relocation to span the widened roadway.

Conflict **2011B** is an aerial 12kv system feeding the pump station between Gaylord Street and 16th Street. The system will be removed along with the pump station.

Conflict **2012** is a 4kv and 12kv underground system in Anaheim Street crossing I-710 and the LA River. The system will be in conflict with the new bridge construction, and will be relocated underground across I-710 and the LA River at Cowles Street via a one-time directional bore. On the west side of the river, the system will run underground in Harbor Avenue from Anaheim Street to 14th Street, and then east to Fashion Avenue via directional bore starting at Cowles Street. On the east side of the LA River, the system will be relocated into San Francisco Avenue and run south to Anaheim Street. The system will cross the LA River with Conflicts 2014, 2015, and 2017.

Conflict **2014** is a 66kv aerial system crossing I-710 and the LA River at Cowles Street. The I-710 widening and the northbound on ramp from Anaheim Street will be in conflict with this system. The relocation strategy proposes to route the system underground on Cowles Street east of Fashion Avenue, and then cross under I-710 and the LA River via a directional bore. On the east side of the LA River, the system will rise on a new pole at San Francisco Avenue. Engineered steel pole is required.

Conflict **2015** is a 66kv aerial system crossing I-710 and the LA River at Cowles Street. The I-710 widening and the northbound on ramp from Anaheim Street will be in conflict with this system. The relocation strategy proposes to route the system underground with Conflict 2014 on Cowles Street east of Fashion Avenue, and then cross under I-710 and the LA River via a directional bore. On the east side of the river, the system will rise on a new pole at San Francisco Avenue and span east to an existing pole on Cowles Street.

Conflict **2017** is a 12kv aerial system crossing I-710 and the LA River at 15th Street. The I-710 widening and ramp work will be in conflict with this system. The system will be relocated on existing poles south on Fashion Avenue to Cowles Street where it will

then go underground with Conflict 2012 across I-710 and the LA River via directional bore. On the east side of the river, the system will share a vault with Conflict 2012, rise on a pole next to the river, and then use two new poles to relocate north to intercept the aerial system at Gaylord Street.

Conflict **2021B** is a 66kv aerial system running parallel to and just north of PCH across both I-710 and the LA River. The system will be in conflict with the PCH bridge widening. In order to avoid multiple relocations of this system, it is recommended that the south half of the PCH Bridge be constructed first. This would allow for an underground relocation in the south half of the bridge. The relocation would occur between Harbor Avenue on the west side of the LA River and Golden Avenue on the east side. It will be important that a bridge cell of the proper size be designated during design for this relocation.

Conflict **2022A** is a 12kv system on joint poles with Conflict 2021B running parallel to and just north of PCH across both I-710 and the LA River. The system will be in conflict with the PCH bridge widening. In order to avoid multiple relocations of this system, it is recommended that the south half of the PCH bridge be constructed first. This would allow for an underground relocation in the south half of the bridge. The relocation would occur between Harbor Avenue on the west side of the LA River and Golden Avenue on the east side. . This relocation will require a bridge cell independent of the cell for Conflict 2021B.

Conflict **2022B** is a 12kv underground system (part of Conflict 2022A) that will be relocated east of Harbor Avenue with Conflict 2022A.

Conflict **2025** is a 12kv underground system feeding the pump station east of 19th Street. The pump station will be removed or relocated, causing the removal of Conflict 2025.

Conflict **2026** is a 66kv system crossing I-710 and the LA River at Hill Street. The existing H-Frame pole between I-710 and the LA River access road is in conflict with the road widening. On the west side of the river, the system will be relocated underground in Hill Street at Fashion Avenue, and then cross I-710 and the LA River via directional bore. On the east side of the river, the system will rise back up on a pole at Hill Street and San Francisco Avenue to tie into the existing system. This relocation will require an engineered steel pole.

Conflict **2027** is a 4kv system on joint poles with Conflict 2026 crossing the I-710 and the LA River at Hill Street. The existing H-Frame pole between the I-710 and the LA River access road is in conflict with the road widening. On the west side, the system will be undergrounded in Hill Street just west of Gale Avenue, and use a directional bore with Conflict 2028 to cross the I-710 and LA River. On the east side, the system will rise back on a pole on De Forest Avenue just north of Hill Street, and tie into the existing system.



Hill Street SCE Crossing



Hill Street SCE Crossing (West side of LA River)

Conflict **2028** is a 12kv system on joint poles with Conflict 2027 crossing the I-710 and the LA River at Hill Street. The existing H-Frame pole between the I-710 and the LA River access road is in conflict with the road widening. On the west side of the river, the system will be undergrounded in Hill Street just west of Gayle Avenue, and use a directional bore with Conflict 2028 to cross the I-710 and the LA River. On the east side of the river, the system will rise back on a pole on De Forest Avenue just north of Hill Street, and tie into the existing system. The relocation will require an engineered steel pole.

Conflict **2029** is a 66kv system crossing the I-710 and the LA River at Hill Street with Conflict 2026. The existing H-Frame pole between the I-710 and the LA River access road is in conflict with the road widening. On the west side the system will be undergrounded in Hill at Fashion Avenue, and use a directional bore to cross the I-710 and LA River. On the east side of the river, the system will rise back on a pole at Hill Street just east of De Forest to tie into the existing system. This relocation will require an engineered steel pole.

Conflict **2033** is a 66kv aerial system crossing I-710 and the LA River at Spring Street. The existing pole at the east end of Spring Street is in conflict with the proposed truck route. The system will be relocated underground in Spring Street, and will cross under I-710 and the LA River via directional bore. On the west side of the river, a new pole west of Gale Avenue will be required. On the east side of the river, a new pole will be required between De Forest Avenue and San Francisco Avenue.

Conflict **2034** is a 12kv aerial system crossing I-710 and the LA River at Spring Street with Conflict 2033. The existing pole at the east end of Spring Street is in conflict with the proposed truck route. The system will be relocated underground in Spring Street, and will cross under I-710 and the LA River via directional bore. On the west side of the river, a new pole west of Gale Avenue will be required. On the east side of the river, a new pole will be required between San Francisco Avenue and Golden Avenue.

Conflict **2035** is a 66kv aerial system crossing I-710 and the LA River at Spring Street with Conflict 2033. The existing pole at the east end of Spring Street is in conflict with the proposed truck route. The system will be relocated underground in Spring Street,

and will cross under I-710 and the LA River via directional bore. On the west side of the river, a new pole west of Gale Avenue will be required. On the east side of the river, a new pole will be required between De Forest Avenue and San Francisco Avenue.

Conflict **2036** is a 4kv aerial system crossing the 710 to feed the Gage Station facility at the LA River. The system and Gage station is in conflict with the widening and truck route. With the Gage station relocating to the east side of the River a new underground 4kv or 12kv system will be extended from 34th Street south along De Forest Avenue to the new Gage Station site. A new pole on 34th Street will be required.

Conflict **2037** is a 12kv aerial system crossing I-710 and the LA River at 34th Street. Existing space where the utility pole exists will be occupied by Freight Corridor. The relocation strategy will require a directional bore under I-710 and the LA River. On the west side of the river, a new vault in 34th Street and a new pole on 34th Street west of Gale Avenue will be required. On the east side of the river, a new vault in the green belt will be required, as well as a new pole at the east edge of the green belt.

Conflict **2040** is a 12kv system runs along the north side of Wardlow just west of the I-710. The system is on joint poles with Conflict 2042 and will be relocated further north from Delta Street to of Caspian Avenue. The timing will be dependent on the completion of Conflict 2042. The line is also in conflict at the northwest quadrant of Wardlow and the I-710, where aerial service line needs to be pulled back a one pole.

Conflict **2042** is dual-circuit 66kv aerial system on the north side of Wardlow Road and is fed from the SCE transmission corridor between Delta Street and Caspian Avenue. The existing poles are in conflict with the street realignment. The relocation will require four new poles but should not require engineered steel poles.

Disruptions/Lead time (general for SCE)

Transmission (66kv) relocations requiring engineered steel poles typically require 6 months for the design. Once a relocation route has been approved SCE will complete steel pole design(s). Procurement of steel poles varies, but 9 to 12 months is a standard procurement period. A period of approximately four months should be assumed for construction, with removals taking another month. Obtaining City permits and easements can take up to 7 months. For construction SCE only has a limited number of in-house crews or third party crews, so it should be expected that only two transmission relocations can occur concurrently. Aerial relocations over the 710 will require rolling highway closures which must be pre-scheduled with Caltrans and the California Highway Patrol. Closures may take up to two weekends in duration.

Distribution (12kv) design normally takes 3 to 6 months depending on relocation length and complexity. Relocation durations vary depending on: length; aerial vs. underground; and number of homes or businesses served for the relocated facility. Traffic conditions can also impact construction durations as in many cases relocation will require shutting down a traffic lane for several days or weeks. Distribution relocations will normally require one to two months to complete; however, removals can take an additional month. As noted under Transmission relocations permitting or traffic conditions can impact durations. Distribution system relocations typically have a minor impact to customers. A four hour outage is fairly normal and SCE will notify each of the potentially impacted customers.

As with SCE construction crews, SCE only has a limited number of transmission and distribution planner/engineers available to work on designs. Alternative 5C has

approximately five different transmission designs packages and thirteen distribution design packages, too many to be designed concurrently. An optimistic assumption would be that SCE will be able to work on half of the transmission designs and a quarter of the distribution relocations at any one time, which will still delay the start of some designs until other are completed.

Underground relocations may create an additional complication if they occur before the start of project construction. Because SCE only has a limited number of construction crews to perform trench and conduit work, they may request that trenching, conduit installation, and placement of hand hole work for relocations be done as a part of the construction contract for the I-710 improvements. This can be an issue when the Agency does not plan on having a Contractor under contract by the time these “early” utility relocations need to start.

5.3.2 Verizon

Alternative 5C

Conflict **2400** is under the ownership of frontier, previously owned by Verizon. This is a copper & fiber underground communications system in the north Anaheim Street and Bridge crossing the I-710 and the LA River. The system will be relocated to the south half of Anaheim Street (bridge to be built in two phases) between Harbor Avenue and just east of San Francisco Avenue.

Conflict **2401** is a small aerial copper line running parallel to Anaheim Street/I-710 SB on-ramp, between Fashion Avenue and Harbor Boulevard. The poles are in conflict with the street realignment and new poles will be required. The existing copper line can probably be transferred to the new poles.

Conflict **2402** is a copper and fiber communication aerial system running just outside the western edge of the I-710 in the back yards of homes adjacent to the I-710 right-of-way between 19th Street and Burnett Street. Only a short stretch of this system is in conflict, between 23rd and Burnett Street.

Conflict **2404** is under the ownership of Frontier, but was previously owned by Verizon. This is a copper and fiber system in the south half of Willow Street crossing both the I-710 and the LA River. The system will ultimately reside within the north half of Willow Street between Fashion Avenue and Golden Avenue. A one-time relocation is dependent on building the north half of Willow Street Bridge first.

Conflict **2405** is a small copper line on poles with the Conflict 2036 aerial system crossing the I-710 to feed a facility at the LA River. The system is in conflict with the widening and truck route. The relocation will require a new pole at the end of 33rd Street as well as a new pole on the east side of the I-710 opposite 33rd Street.

Conflict **2410** is a large underground communication system in the middle of Wardlow Road. This system will be relocated into the north half of the new Wardlow Road bridge, which must be built first. Lead times for both design and construction will be very long, 6 months for design and 1 year for construction, respectively. The placement of new conduit will occur during bridge construction and will most likely be a few weeks in duration. The placing and splicing of new communication lines will probably take in excess of 6 months.

Conflict **2411** is on joint poles with Conflict 2040 and will be relocated further north between Delta Street and Caspian Avenue. The line is also in conflict at the northwest

quadrant of Wardlow and the I-710, where the aerial service line needs to be pulled back a one pole along with SCE.

Alternative 7

Conflict **2400** is under the ownership of Frontier, previously owned by Verizon. This is a copper and fiber underground communications system in the north Anaheim Street and bridge crossing the I-710 and the LA River. The system will be relocated to the south half of Anaheim Street (bridge to be built in two phases) between Harbor Avenue and just east of San Francisco Avenue.

Conflict **2404** is under the ownership of Frontier, previously owned by Verizon. This is an underground copper and fiber system crossing the I-710 and LA River in Willow Street. The system will ultimately reside in the north half of Willow Street between Fashion Avenue and Golden Avenue. A one-time relocation is dependent on building the north half of Willow Street Bridge first.

Conflict **2410** is a large underground communication system in the middle of Wardlow Road. This system will get relocated into the north half of the new Wardlow Street bridge, which must be built first. Lead times for both design and construction will be very long, 6 months for design and 1 year for construction, respectively. The placement of new conduit will occur during bridge construction and will likely be a couple of weeks. The placing and splicing of new communication lines will probably take in excess of 6 months.

Conflict **2411** runs on joint poles with Conflict 2040 and will be relocated further north between Delta Street and Caspian Avenue. The line is also in conflict at the northwest quadrant of Wardlow and the I-710, where the aerial service line needs to be pulled back a one pole along with SCE.

Lead time

Verizon can be very slow in their design and relocation process as well as have difficulties in meeting schedule commitments. Verizon has limited resources and it should be assumed that at most two major relocations could occur concurrently. Verizon won't allow customers to be without service, which can prolong the duration of the relocation of a major system as much as 6 months.

5.3.3 Charter

Alternative 5C

Conflict **2500** is a copper CATV aerial system running just outside the westerly edge of the I-710 in the back yards of homes adjacent to the I-710 right-of-way between 19th Street and Burnett Street. Only a short stretch of this system is in conflict, between 23rd and Burnett Street. The relocation will place one or two new poles just west of their present location.

Conflict **2504** is an aerial fiber line on SCE poles along Wardlow Road. When SCE relocates these poles, Charter will need to de-lash their cable and re-attach to the new poles.

Conflict **2505** is a fiber system in the south half of Willow Street crossing both the I-710 and the LA River. The system will ultimately reside in the north half of Willow between Fashion Avenue and Golden Avenue. A one-time relocation is dependent on building the north half of Willow Street Bridge first.

Alternative 7

Conflict **2502** is an active aerial copper line crossing the I-710 and the LA River at 34th Street.

Conflict **2504** is an aerial fiber line on SCE poles along Wardlow Road. When SCE relocates these poles Charter will need to de-lash their cable and re-attach to the new poles.

Conflict **2505** is an active underground fiber line crossing the I-710 and LA River at Willow Street. The system will ultimately reside in the north half of Willow Street between Fashion Avenue and Golden Avenue. A one-time relocation is dependent on building the north half of Willow Bridge first.

5.3.4 Crown Castle (formerly Next G)

Alternative 7

Conflict **2200** is a fiber system on joint poles with SCE Conflict 2026 crossing both the I-710 and La River at Hill Street. This system will need to be relocated underground via a directional bore crossing of the I-710 and the LA River. This system cannot be in the same casing as the SCE transmission facilities.

5.3.5 T-Mobil

Alternative 5C/Alternative 7

Conflict **2600** is a cell tower site just south of Willow Street in conflict with ramp realignment. In addition to the tower, sites typically contain electronic switching equipment for numerous carriers and mobile telephone companies. T-Mobil plans indicate that Nextel and Sprint have facilities within this site. The site is normally connected to cables from one or more providers which must also be relocated to the new tower site. The relocation of this tower site should be considered a long lead item.

5.3.6 XO Comm

Alternative 5C

Conflict **2900** is an active aerial fiber system on joint poles with SCE Conflict 2026 line crossing the I-710 and LA River at Hill Street.

Alternative 7

Conflict **2900** is an active aerial fiber line crossing the I-710 and the LA River at Hill Street. This system will need to be relocated underground via a directional bore crossing of the I-710 and LA River. This system will not be allowed in the same casing as the SCE transmission facilities, but will be allowed to occupy the same trench as Next G.

6. Petroleum

The majority of utility conflicts within the south segment are with petroleum lines. Oil line conflicts for each Alternative are described below by owner, with mitigation measures defined for each conflict. Concurrence letters for majority of the utilities are located in [Appendix 2](#)

6.1.1 Beta Offshore

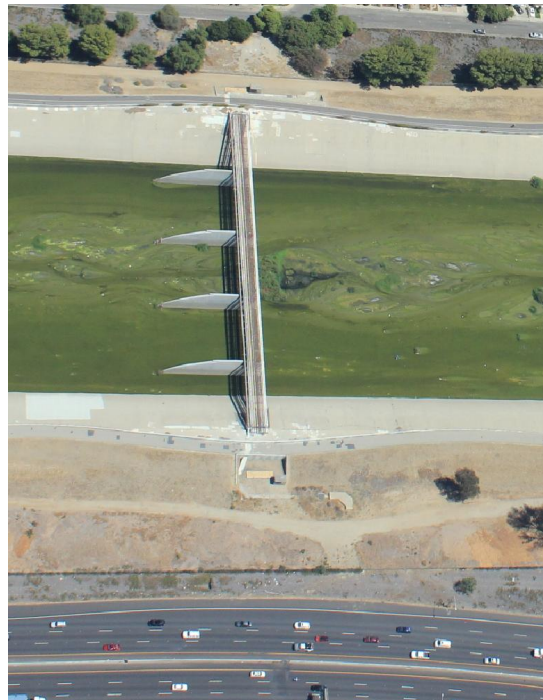
No impact for Alternative 5C and 7.

6.1.2 Chemoil

Alternative 5C

Conflict **6105** is an idle 4-inch line, running in the east/west direction along Burnett Street, perpendicular to I-710, and the LA River. An existing valve is located on the east and west side of the LA River. Chemoil valves are a part of shared utility vault, consisting of 12 oil lines, owned by 4 different oil companies. The 4-inch line on the west side of the LA River is in conflict with proposed improvements and will be relocated to LACFCD right-of-way. Existing conditions, mitigation measures, disruptions and lead time related to the vault relocation are discussed in Technical Memorandum #9, Pipeline Crossings South of Willow.

Conflict **6106** is an idle 8 inch line, Conflict **6107** is an idle 6 inch line, and Conflict **6108** is an idle 8 inch line. All lines run in the east/west direction along 28th Street, perpendicular to I-710 and LA River. Each line contains a valve on both the east and west side of the LA River. Chemoil valves are a part of the shared utility vault, consisting of 12 oil lines, owned by 5 different oil companies. The existing lines on the west side of the LA River are in conflict with proposed improvements and will be relocated to LACFCD right-of-way. Existing Conditions, mitigation measures, disruptions and lead time related to the vault relocation are discussed in Technical Memorandum #10 Pipeline Crossings North of Willow.



Pipeline Bridge – 28th Street

Alternative 7

Similar to Alternative 5C, vaults at Burnett Street and 28th Street will require relocation. Since the space is more confined for Alternative 7, a directional bore is proposed at Burnett Street (Conflict **6105**). The vault at 28th Street will be relocated west

of I-710, keeping the existing utility bridge in place (Conflicts **6106**, **6107**, and **6108**). Existing conditions, mitigation measures, disruptions, and lead time related to the vault relocation are discussed in Technical Memorandum #9, Pipeline Crossings South of Willow, and Technical Memorandum #10, Pipeline Crossings North of Willow.



Pipeline Bridge north of Willow Street - 28th Street

6.1.3 Crimson Pipeline (Exhibit E11A)

Alternative 5C

Conflict **6203** is an active 4-inch line running on the east side of I-710 and along the westerly bank of the LA River through the OXY facility. Shoemaker Bridge is a part of the I-710 EIR/EIS project, with the new bridge being located south of the existing bridge. Proposed columns for the bridge are in conflict with the existing 4-inch petroleum line, requiring a relocation that needs to be coordinated with the OXY facility who currently occupies the property.

Conflict **6204** is an idle 8-inch line along Anaheim Street. The existing Anaheim Street bridge will be replaced with a new bridge, requiring the 8-inch line to be relocated within the bridge limits.

Conflict **6206** is an active 10-inch line, Conflict **6207** is an idle 6-inch line, and Conflict **6208** is an idle 6-inch line running in the east/west direction. There are 12 oil lines within the utility vault owned by 5 different oil companies. Valves accompany each line within the utility vault on both the east and west side of the LA River at 28th Street. The

vault on the west side of the river will be relocated to LACFCD right-of-way. Existing conditions, mitigation measures, disruptions, and lead time related to the vault relocation are discussed in Technical Memorandum #10, Pipeline Crossings North of Willow.

Conflict **6209** is an idle 6-inch line, and conflict **6210** is an idle 10-inch line, running in the east/west direction north of Wardlow Road. There is an existing utility bridge, which has to be demolished due to conflict with proposed I-710/I-405 interchange improvements. AECOM developed three options for re-routing the two pipelines (Exhibit E5B):

- Option 1 – relocation to Wardlow Road (though Wardlow bridge), Golden Avenue and Baker Street.
- Option 2 – relocation to Wardlow Road (though Wardlow bridge), 500 feet west of Golden Avenue to Baker Street.
- Option 3 – 1,500 foot directional bore under I-710 and LA River along Baker Street.

Existing conditions and proposed mitigation measures are further discussed in Technical Memorandum #11 Pipeline Crossings North of Wardlow Road.



Pipeline Bridge (Crimson) – North of Wardlow Road

Disruptions

Based on the Draft I-710 EIR/EIS, a new bridge at Wardlow Road is required. Disruptions to traffic, due to construction staging are expected in the vicinity. Pipeline

construction should occur during the bridge construction, following demolition of the existing utility bridge, as described in relocation Options 1 and 2.

Lead time

Design time and permitting is required for all options, which may take up to 1.5 years. Construction duration for Options 1 and 2 will depend on the bridge construction, while construction duration for Option 3 will be independent of the bridge construction and can be completed within 6 months.

Conflict **6211** is an existing utility vault, shared between 12 lines, with 5 utility owners. The vault is located at the terminus of 28th Street, on the east side of I-710. Existing Conditions, mitigation measures, disruptions and lead time related to the vault relocation are discussed in Technical Memorandum #10 Pipeline Crossings North of Willow and Exhibit 11B.

Alternative 7

Conflicts **6203** and **6204** described above for Alternative 5C have similar impacts for Alternative 7. The vault at 28th Street with Conflicts **6206**, **6207**, and **6208** has a different configuration for Alternative 7, where it is being relocated into City right-of-way to 28th Street (Exhibit E11B).

6.1.4 Lomita

Conflict **6424** describes numerous lines within Tidelands facility which are owned and operated by Lomita. Since Tidelands facility is to be relocated to the west side of the I-710 all Lomita connections are to be either abandoned, or re-established at the new Tidelands site. Even though the proposed configuration of the Tidelands facility varies for Alternative 5C, Alternative 7 and Alternative 5C Design Option, removal/abandonment of existing lines, then connection to the proposed site will be configured in similar way for all three Alternatives.

6.1.5 Oil Operators

Alternative 5C

Conflict **6500D** is an active 10-inch steel water line running in the east/west direction along Burnett Street, perpendicular to I-710 and the LA River. Existing valves are located on both the east and west side of the LA River. Oil Operators valves are a part of the existing vault, consisting of 12 oil lines owned by 4 different oil companies. The 10-inch line on the west side of the LA River is in conflict with proposed improvements and will be relocated to LACFCD right-of-way. Existing conditions, mitigation measures, disruptions, and lead time related to the vault relocation are discussed in Technical Memorandum #9, Pipeline Crossings South of Willow.

Conflict **6500B** is an active 12-inch HDPE water line, Conflict **6500C** is an active 8-inch water line, Conflict **6701** is an active 6-inch oil line, and Conflict **6702** is an active 8-inch oil line. All listed crossings are in conflict with the ramps to and from Pico Avenue. Described relocations should be coordinated with the Port of Long Beach and with other improvements within the vicinity (Rail Yard extension).

Conflict **6500D** as described in Alternative 5C has different configuration for Alternative 7. The vault will be relocated to the west side of I-710 at the terminus of Burnett

Street. A directional bore will connect the west and east terminus of Burnett Street with vaults located on both sides.

6.1.6 Paramount Petroleum (Exhibit E7)

Alternative 5C

Conflict **6702A** is an active 6-inch steel oil line running along Harbor Avenue and Fashion Street. The line turns 90 degrees west at Willow Street. To avoid bends and a longitudinal encroachment into future Caltrans right-of-way, a portion of the line was relocated south of Willow Street into the adjacent alley.

Conflict **6703** is an active 8-inch steel oil line running longitudinally to I-405 within Wardlow Road, west of I-710. The proposed I-710 interchange modifications require a portion of the line within the southwest corner to relocate. The current mitigation measure proposes re-routing the line further east along Wardlow Road and Delta Avenue, connecting with the existing alignment before the I-405 approach. Encasement within Caltrans right-of-way will be extended further south.

Alternative 7

Conflict **6700** is an idle 8-inch oil line, Conflict 6701 is an active 6-inch oil line, and Conflict 6702 is an active 8-inch oil line. All listed crossings are in conflict with the ramps to and from Pico Avenue. Described relocations should be coordinated with the Port of Long Beach and with other improvements within the vicinity (Rail Yard extension).

Conflicts **6702A** and **6703** described above have similar configurations to Alternative 5C.

6.1.7 Plains All American Pipeline (Exhibit E8)

Alternative 5C

Conflict **6800** is an active 16-inch steel fuel line, running in the east/west direction along 28th Street. There are number of utility lines crossing I-710 and LA River, all running through an existing utility bridge, with the vaults located on both the east and west side of the river. Two utility vaults are located on the west side, where one is a shared vault between various utility owners, the other vault is owned by Plains (Conflict **6803**). The Plains vault will be relocated to LACFCD right-of-way. Existing conditions, mitigation measures, disruptions, and lead time related to the vault relocation are discussed in Technical Memorandum #10, Pipeline Crossings North of Willow.

Lead time

Conflict **6800** contains hot oil; therefore additional lead time is needed to perform a heat study, which can be performed during the design phase.

Conflict **6801** is a vault box located within BP property, on the westerly side of the I-710 at the terminus of Burnett Street. Possible incoming and outgoing pipelines may be impacted, but the vault should remain in place.

Alternative 7

Conflict **6800** described above has different configuration for Alternative 7. The utility Vault (Conflict **6803**) will be relocated west of I-710, to West 28th Street terminus.

6.1.8 Shell Oil Company

Alternative 5C

Conflict **6900** is an active 12-inch steel line running in the east/west direction along 28th Street. There are a number of utility lines crossing I-710 and the LA River, all running through an existing utility trestle, with the vaults located on both the east and west side of the river. There are 12 lines within the utility vault owned by 5 different oil companies. Valves are assigned to each line within the utility vault on each side of the river at 28th Street. The vault on the west side of the river will be relocated to LACFCD right-of-way. Existing conditions, mitigation measures, disruptions, and lead time related to the vault relocation are discussed in Technical Memorandum #10, Pipeline Crossings North of Willow.

Conflict **6901** is a Shell vault located at 28th Street. Similar to the shared vault and Plains vault, the Shell vault should be relocated to LACFCD right-of-way. The current mitigation measure proposes a shared vault between different owners. Existing conditions, mitigation measures, disruptions, and lead time related to the vault relocation are discussed in Technical Memorandum #10, Pipeline Crossings North of Willow.

Alternative 7

Conflict **6900** described above has a different configuration for Alternative 7. The utility vault (Conflict **6901**) will be relocated west of I-710 to the west 28th Street terminus. See Exhibit 11B.

6.1.9 CRC – Tidelands (Exhibit E6A-D)

Alternative 5C

There are number of active produce water lines and water injection lines servicing existing Tidelands Facility located east of I-710, between Cowles Street and Gaylord Street. All lines within proposed Caltrans right-of-way will be removed or abandoned. Services provided from west will be re-routed to the new Tidelands Facility located west of I-710, between Cowles Street and Gaylord Street. These relocations include conflicts: **7021**, an active 12 inch steel produce water line, conflict **7021A**, an active 4" line, conflict **7022**, a water injection line for Tidelands facility, conflict **7033**, an active produce water, conflict **7024**, an active steel oil line.

Conflict **7025** is Tidelands Facility, located west of I-710, between West Cowles Street and W Gaylord Street. There are total of 21 wells to be abandoned and relocated from the east to the west side of I-710, between Cowles Street and Gaylord Street. Tidelands Well Bore Analysis was performed for the site in 2013. The analysis contains subsurface evaluation, feasibility, and cost analysis of the relocation.



Tideland Facility

Alternative 7

Conflict **7004A** includes two wells being in conflict with proposed improvements. Additional lead time is needed for evaluation, design preparation and relocation of the wells.

Conflict **7006** is an active 10-inch oil line, Conflict **7007** is a 2-inch line, Conflict **7008** is a 2-inch oil line, Conflict **7009**, **7011**, **7012**, and **7013** are 2-inch oil lines, and Conflict **7010** is a 10-inch line. All listed lines are in conflict with proposed improvements within Pico On-ramps/Off-ramps area, south of Anaheim Street and require relocation.

Conflict **7021A**, conflict **7022**, conflict **7033**, conflict **7024** described above have similar impacts to Alternative 5C.

6.1.10 CRC – Occidental Petroleum

Occidental Petroleum (OXY), conflict **6600** is a standard lease facility within the LACFCD boundary. The site is located along the west bank of the LA River between Ocean Boulevard and Anaheim Street, at the south terminus of I-710 EIR/EIS project. Shoemaker Bridge is a part of the I-710 EIR/EIS project. The existing bridge is being replaced with a new bridge where the new footprint is aligned slightly south and parallel to the existing bridge. The footprint of the new bridge affects four of the existing oil wells, which require relocation. This mitigation measure applies to all the proposed I-710 Alternatives.

6.1.11 Chevron (Exhibit E9)

Alternative 5C

Conflicts **7201** and **7202** are active 6-inch welded steel (WSP) lines running in the east/west direction along 28th Street. There are a number of utility lines crossing I-710 and the LA River, all running through an existing utility trestle, with the vaults located on both the east and west side of the river. There are 12 lines within the utility vault owned by 5 different oil companies. Valves are assigned to each line within the utility vault on each side of the LA River at 28th Street. The vault on the west side of the river will be relocated to LACFCD right-of-way towards the existing LACFCD maintenance road running along the westerly bank of the river. Existing conditions, mitigation measures, disruptions, and lead time related to the vault relocation are discussed in Technical Memorandum #10, Pipeline Crossings North of Willow.

Alternative 7

Conflicts **7201** and **7202** described above have different configurations for Alternative 7. The utility vault will be relocated west of I-710 to the west 28th Street terminus. See Exhibit 11B.

6.1.12 Tesoro

Alternative 5C

Most of the Tesoro conflicts are within the vicinity of Burnett Street, where the existing Tesoro Manifold meter is located. This includes conflict **7507**, an active 9-inch WSP, Conflict **7508**, an idle 6-inch WSP, Conflict **7509**, an idle 13-inch WSP, Conflict **7513**, an idle 8-inch WSP, Conflict **7514**, an active 10-inch WSP line, and Conflict **7522**, an active 12 ¾-inch steel line. All listed conflicts cross the LA River through the utility trestle. There are two utility vaults located on the east and west side of the river. The vault located on the west side of the river is in conflict with proposed improvements and will be relocated to LACFCD right-of-way. Existing conditions, mitigation measures, disruptions, and lead time related to the vault relocation are discussed in Technical Memorandum #9, Pipeline Crossings South of Willow.



Conflicts **7511** and **7512** are idle 8 and 10-inch WSP lines, respectively, running east of I-710 from 11th Street to Burnett Street. The I-710 expansion requires both lines to be relocated outside of proposed Caltrans right-of-way. A new alignment for each line is proposed along Fashion Avenue and Gale Avenue, connecting to Burnett Street.

Pipeline Bridge though LA River at Burnett Street

Conflicts **7516** and **7517** are both idle 8 5/8-inch WSP lines that are located on the west side of I-710. Additional casings may be required within Caltrans right-of-way.

Alternative 7

Conflicts **7507**, **7508**, **7509**, **7513**, **7514**, and **7522** as described above have different impacts within Alternative 7. The utility vault will be relocated west of I-710 to the west 28th Street terminus. See **Exhibit 11B**.

Conflicts **7511** and **7512** as described above have similar impacts to Alternative 5.

Conflict **7515** is within the Pico On-Ramp area/Pier B Street. The line needs to be relocated.



Vault at Burnett Street

6.1.13 Thums

No impact for Alternative 5C and 7

6.1.14 Exxon Mobil

No impact for Alternative 5C and 7

7. Conclusion

The purpose of this study was to understand, and evaluate the existing conditions of all underground and overhead utilities within the project limits, and to develop mitigation measures for all utilities in conflict to support developed EIR/EIS Alternative 5C, Design Option and Alternative 7. The proposed mitigation measures, along with detailed cost summary and utility rights for all utilities in conflict are included in the Utility Matrix, and are a part of the Utility Report.

To arrive at a conclusion, AECOM worked closely with the utility companies, subconsultants and stakeholders by coordination and interactions through meetings and via the phone. The result of this work is delivered as:

1	Utility Rights for impacted utilities within the project limits
2	Existing Utility Plans
3	Technical Memorandums
4	Proposed mitigation measures within the project limits
5	Letters of Concurrence from various utility owners
6	Estimated utility construction schedule
7	Disruptions and lead time for the I-710 EIR/EIS Alternatives
8	Cost Estimate for Alternative 5C, Design Option, Alternative 7
9	-

7.1 Proposed Utility Mitigation Measures

Proposed Utility Plans were developed based on existing utility plans, submitted in April, 2014. The purpose of the proposed utility plans is to graphically describe utility mitigation measures for various utility owners within the south segment of I-710 Corridor. Each conflict is identified by the number, which corresponds to the number in the Utility Matrix. Conflict areas include removals, relocations, and mitigation strategies for all utilities.

Mitigation Measures Proposed Utility Plans were developed for Alternative 5C and 7 and are referenced in [Appendix 4](#).

7.2 Proposed Utility Matrix

All existing conflicts described graphically in proposed utility plans are listed within proposed Utility Matrix. The Utility Matrix is a supplement to the proposed utility plans, where utility features, rights, available as-built information, and conflict resolution for Alternative 5C and 7 are described. The proposed Utility Matrix is a part of [Appendix 5](#).

7.3 Cost Estimate Summary

A utility cost estimate was developed for all utility owners, including major and minor utilities within the project limits. The cost estimate was divided into 5 subareas:

- 1) Shoreline (from Goldenshore to Shoemaker)
- 2) Pico-Anaheim (from Harbor Scenic Drive to Gaylord Street)
- 3) PCH (from Gaylord Street to Hill Street)
- 4) Willow (from Hill Street to 31st Street)
- 5) I-405 (from 31st Street to Metro Crossing)

The summary of the Cost Estimate is provided below:

Table 2: Overall Utility Cost Estimate – I-710 South End

7.4 Caltrans Utility Information Sheets

Caltrans Exhibits 4-EX-5 were provided with the cost break down for each segment. The project consists of total of 5 segments, all listed in the cost estimate summary above. Since the work is preliminary, it was assumed that the project will bear the full cost of the improvements. The actual project cost will be estimated once the final alternative is determined. Documentation regarding utility rights is provided in the matrix.

7.5 Schedule Estimate

Schedule estimate to complete the project is provided below. The actual start date will be driven by EIR/EIS draft completion and determination of the final alternative. Assumptions made for the estimate:

1. Prime contract will manage multiple specialty trade contracts (water, sewer, communication etc.) under a single Prime Contract to ensure coordination of work.
2. Schedule is provided for Alternative 7. Alternative 5C and Design Option should be less or equal the duration of Alternative 7.
3. Majority of the Mitigation Measures have to be completed before the construction of the EIR/EIS preferred Alternative will commence.

Appendix A Document copies

Body text

Numbered copies				
Number:		<DocumentCop	Copies to:	<Copy recipient
	y>		1>	<Copy recipient
			2>	<Copy recipient
			3>	<Copy recipient

